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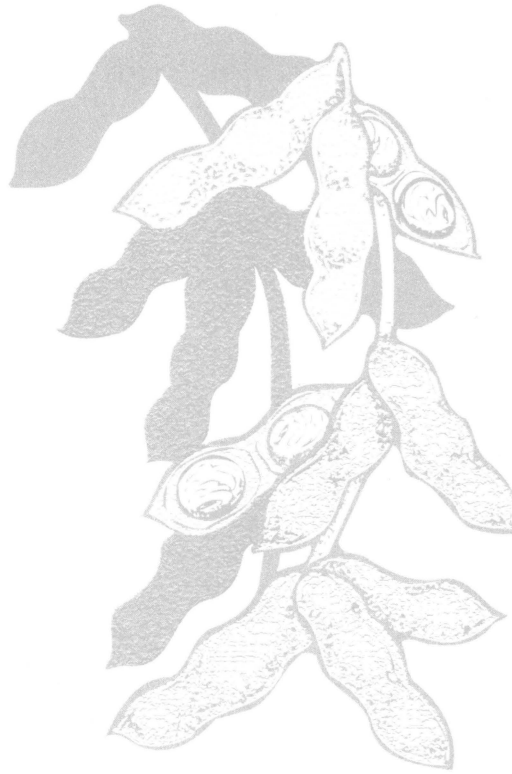

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Reactions of Soybean Plant Introductions (PI273483 to PI427107) Following Inoculation with *Phytophthora sojae*

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Abstract

Phytophthora sojae causes a root rot that is a major constraint in soybean production in many regions of the United States and throughout the world. This disease is best managed with resistant varieties. One or two types of resistance may be found in commercial varieties, specific *(Rps* genes) and partial resistance. Some root rot develops at a much slower rate in varieties with partial resistance. In many fields in the north central region of the United States, populations of *P. sojae* exist that can infect varieties with the currently deployed *Rps* genes. New *Rps* genes as well as additional sources of partial resistance are needed. This study evaluated more than 800 soybean accessions for specific resistance and partial resistance to *P. sojae*. A complete listing of the reactions is included, and the data is searchable on the USDA National Plant Germplasm System, Germplasm Resources Information Network (GRIN).

Introduction

Phytophthora sojae (Kaufmann and Gerdemann) is the major pathogen of soybeans in Ohio and contributes to losses in several production regions in the United States and the world (3,8). Under saturated soil conditions, *P. sojae* produces motile zoospores which locate and infect soybean plants throughout the growing season. Phytophthora seed rot and damping-off are early-season diseases, while Phytophthora root and stem rot occurs mid-to-late season.

Single resistance genes, designated *Rps* genes, have provided a somewhat durable disease-management strategy. Cultivars with single *Rps* genes were first deployed in Ohio during the 1960s. Thirteen *Rps* genes have been identified to date, of which eight (*Rps1a, Rps1b, Rps1c, Rps1k, Rps2, Rps3a, Rps6,* and *Rps7*) have been used in commercial soybean cultivars. However, following deployment of each single *Rps* gene, races of *P. sojae* were subsequently identified that had a susceptible interaction with the *Rps* gene. Single *Rps* genes have been effective for eight to 15 years depending on inoculum density and environmental conditions (4). Phytophthora root rot was identified in fields in

which cultivars with the single gene, *Rps1k*, were grown as early as 1990 in Ohio (5). Races of *P. sojae* that elicit a susceptible interaction with *Rps1k* have also been isolated from soil in Indiana (1) and plants in Iowa (9) during 1993 and 1991, respectively. In addition, races of *P. sojae* with virulence pathotypes for *Rps* genes that have never been deployed have also been identified (1, 5, 7).

New sources of resistance need to be identified in order to maintain single *Rps* genes as a viable tool. In order to identify novel sources of resistance, the authors selected *P. sojae* isolates that would have a susceptible interaction with each of the 13 *Rps* genes. This was followed by a series of isolates which would have susceptible interactions with specific 2 and 3 *Rps* gene combinations. It is not uncommon for soybean accessions to have 2 *Rps* genes. For example, the soybean cultivar, Tracy, that was widely planted throughout the southern United States has *Rps*1b and *Rps*3a. Each soybean plant can have a maximum of 7 *Rps* genes represented by genes at each locus identified to date.

The purpose of this study was to identify new sources of *Rps* and partial resistance to *P. sojae* in the USDA Soybean Germplasm collection. The purpose of this publication is to provide a complete listing of the accessions tested and their reactions. A summary report has been published in *Plant Disease* (v 84:1303-1308). This data is also available in a searchable format on the USDA National Plant Germplasm System, Germplasm Resources Information Network (GRIN) at **http://www.ars-grin.gov/npgs/.**

Materials and Methods

Plant Introductions

The soybean germplasm examined in this study included accession numbers PI273483 to PI427107, in maturity groups 000 to IV, from the USDA Soybean Germplasm Collection in Urbana, Illinois.

Laviolette and Athow evaluated many of the accessions in this collection previously for resistance to frogeye leafspot race 2 and *P. sojae* races 1, 2, 3, and 4 (2). Some lines were also evaluated for reaction to *P. sojae* races 5, 6, 7, 8, and 9 (2). The 1,015 accessions selected for the current study were resistant or not tested in Laviolette and Athow's previous evaluation.

Detection of Sources of *Rps* Genes

The isolates that were used in inoculations and their virulence pathotype are listed in Table 1. All of the isolates originated in Ohio. Races 7, 17, and 25 collectively have susceptible interactions with all of the designated *Rps* genes and many *Rps* gene combinations.

Additional isolates were then selected that elicit a susceptible interaction with specific 2-*Rps* gene combinations (Table 2). For example, *P. sojae* race 31 has a susceptible interaction with *Rps* gene combination of *Rps1k* and *Rps6*, but races 7, 17, or 25 have a resistant reaction.

The race designations for *P. sojae* are based on the susceptible reaction of eight of the 13 differentials — *Rps1a, Rps1b, Rps1c, Rps1d, Rps1k, Rps3a, Rps6,* and *Rps7* (1, 5). The authors used the combination of race-isolate code for 30-T to indicate that there is a difference in the pathotype among two isolates that are designated *P. sojae* race 30 (Table 1).

The hypocotyl inoculation technique (6) was used to evaluate the accessions for *Rps* genes. Inoculum was prepared by growing *P. sojae* for approximately seven days on lima bean-soft agar (12g agar per L). Colonized areas of the plate were removed and placed in a hypodermic syringe; this was mixed to make a slurry by forcing the mycelium and agar through the syringe two times.

Eight to 10 seeds of each accession were planted in vermiculite in the greenhouse. After seven to 10 days, an incision was made in the hypocotyl, and approximately 0.2 to 0.4 mls of a mycelium agar slurry was placed in the wound. The plants were covered overnight with plastic to prevent the agar from drying out.

Seedlings were evaluated for resistant (hypersensitive) and susceptible reactions four to six days after inoculations. Inoculations of accessions that were resistant to *P. sojae* races 7, 17, and 25 were repeated five times. Accessions that were inoculated with *P. sojae* races 31, 30-T, 30, 33, and 38 were evaluated a minimum of three times with each race.

Detection of Partial Resistance

Once a *P. sojae* isolate was identified that had a susceptible interaction with an accession, that isolate was then chosen to evaluate partial resistance. *P. sojae* races 7, 17, 25, 30, and 31 were used to evaluate for partial resistance with the inoculum-layer test (6) in 14 separate screenings.

Each inoculum-layer test was arranged in a randomized complete block design with three replications which included five soybean cultivars with known resistance response. For example, the controls for *P. sojae* race 25 were: Chapman (Rps-3a, resistant), Conrad (high partial resistance), Resnik (moderate partial resistance), Williams (moderately susceptible), and Sloan (susceptible). Standard soybean cultivars, Sloan and Conrad, were included with each test in order that comparisons could be made with all of the accessions evaluated with the different *P. sojae* races.

The inoculum consisted of two-week-old *P. sojae* cultures grown on dilute lima bean agar (extract from 50g ground lima beans in 1 L) in glass petri plates. The *P. sojae* colonized agar was removed intact from the petri plate and placed 5 cm below the seed (12 soybean seeds per pot) in course vermiculite in 1.2 L polystyrene containers with bottom drainage. The pots were watered to run-through twice daily. Seedling roots were inoculated with *P. sojae* as they grew through the agar layer.

Three weeks after planting, the root mass was removed from the pot, the vermiculite shaken off, and the plants scored on the following scale: 1 = no root rot; 2 = up to 10% root mass rotted; 3 = up to 25% of root mass rotted; 4 = 50% of root mass rotted; 5 = all roots rotted, up to 20% seedlings killed; 6 = up to 50% seedlings killed; 7 = up to 75% of plants killed; 8 = up to 90% seedlings killed; 9 = all plants killed.

In order to compare the results from multiple tests as well as isolates with different levels of aggressiveness, the partial resistance rating of three replications were adjusted for the results of the standard check cultivars, Sloan and Conrad, as follows: the means of the partial resistance rating for the standard cultivars were all adjusted by adding or substracting 0.5 to 1.5 to equal the following scores: Conrad (3.5) susceptible cultivar Sloan (6.0).

The scores of the controls were analyzed with the PROC GLM procedure at SAS (SAS Institute, Cary, N.C.) for the effects of test and test by cultivar interaction. The corrected means for all of the accession data was then pooled and analyzed with PROC GLM using SAS (SAS Institute, Cary, N.C.).

Results

Results from hypocotyl and layer tests of soybean plant introductions PI273483 to PI427107, in maturity groups 000 to IV, following inoculation with *P. sojae* are outlined in Table 3. Of the 1,015 soybean plant introductions evaluated for new sources of *Rps* genes in this study, 159, or approximately 16%, were susceptible to all three

races 7, 17, and 25, indicating that they either had *Rps7* or there were no *Rps* genes present.

In contrast, 162, or 16%, were resistant to all three races 7, 17, and 25 of *P. sojae*. Of these 162, 32 were resistant to an additional five races of *P. sojae* (Table 3). These additional races (30-T, 30, 31, 33, and 38) have a susceptible interaction with many 2-*Rps* gene combinations (Table 2). These five isolates of *P. sojae* do not have a susceptible interaction with four 3-*Rps* gene combinations — *Rps1c, Rps3a, Rps4; Rps1c, Rps3b, Rps4; Rps1c, Rps2, Rps3a;* and *Rps1c, Rps2, Rps3b* (Table 3).

Therefore, the 130 of the 162 soybean plant introductions that had a susceptible interaction with these five additional isolates potentially have more than one *Rps* gene. The possibility also exists that an unidentified *Rps* gene could have a susceptible interaction with these additional races with a previously unidentified virulence pathotype.

Forty-nine accessions had mean root-rot ratings of $\leq$3.0, and 438 had ratings from 3.1 to 4.0, indicating very high levels of partial resistance in the 877 soybean plant introductions that were inoculated with a race of *P. sojae* that had a susceptible hypocotyl interaction (Table 3). These levels of partial resistance were equal to or better than the standard cultivar Conrad which has a partial resistance score of 3.5 with most isolates.

Acknowledgments

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Table 1. Differential Reaction and Race Designations of Isolates of *Phytophthora sojae* Used to Detect New Sources or Resistance in Soybean Plant Introductions (PI273483-PI427107).

P. sojae [a] Race	Virulence Pathotype[b]
7	1a, 2, 3a, 3c, 4, 5, 6, 7
17	1b, 1d, 2, 3a, 3b, 3c, 4, 5, 6, 7
25	1a, 1b, 1c, 1k, 7
31	1b, 1c, 1k, 2, 3c, 4, 5, 6, 7
30-T	1a, 1b, 1k, 2, 3a, 3c, 4, 5, 6, 7
30	1a, 1b, 1k, 2, 3a, 3b, 3c, 4, 5, 6, 7
33	1a, 1b, 1c, 1d, 1k, 3b, 5, 7
38	1a, 1b, 1c, 1d, 1k, 3a, 3b, 3c, 5, 6, 7

[a] Isolates are listed as the race designation; T is used to separate two isolates which would be designated race 30 based on the reaction of the isolate on differentials *Rps1a, Rps1b, Rps1c, Rps1d, Rps1k, Rps3a, Rps6,* and *Rps7.*

[b] The pathotype indicates which *Rps* genes in the host the *P. sojae* isolates have a susceptible interaction. *P. sojae* races were determined on the following differentials: Williams (universal suscept); Harlon (*Rps*1a); Harosoy 13XX (*Rps*1b); Williams 79 (*Rps*1c); PI103091 (*Rps*1d); Williams 82 (*Rps*1k); L76-1988 (*Rps*2); L83-570 (*Rps*3); PRX 146-36 (*Rps*3b); PRX 145-48 (*Rps*3c); L85-2352 (*Rps*4); L85-3059 (*Rps*5); Harosoy 62XX (*Rps*6); and Harosoy (*Rps*7).

Table 2. Selected 2 *Rps*-Gene Combinations That Are Susceptible to Specific *P. Sojae* Races.

P. sojae race	Selected susceptible *Rps* gene combinations
7	1a,2; 1a,3a; 1a,3c; 1a,4; 1a,5; 1a,6; 1a,7; 2,3a; 2,3c; 2,4; 2,5; 2,6; 2,7; 3a,4; 3a,5; 3a,6; 3a,7; 3c,4; 3c,5; 3c,6; 3c,7; 4,5; 4,6; 4,7; 5,6; 5,7; 6,7
17	1b,2; 1b,3a; 1b,3c; 1b, 4; 1b,5; 1b,6; 1b,7; 2,3b; 3b,4; 3b,5, 3b,6, 3b,7
25	1c,7; 1k,7
31	1c,2; 1c,3c; 1c,4; 1c,5; 1c,6; 1k,2; 1k,3c; 1k,4; 1k, 5; 1k,6
30	1k,3a
30T	1a,3b; 1k,3b
33	1c,3b
38	1c,3a

Table 3. Reactions of Soybean Plant Introductions to *Phytophthora sojae*.

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
273483C	IV	R	R	R		R	S			7, H 17, 25	30	NT	—
273483D	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	—	—
274205	IV	S	S	R						25		7	4.0
274212	IV	R	S	R						7, 25		17	3.7
274421	IV	R	R	R	S	R	R	R		7, 17, 25	31, 30, 33	NT	—
274456	III	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	—	—
290136	0	S	S	S								25	4.2
291309D	II	R	S	S						7		25	4.0
291327	II	S	R	R	S					17, 25		30T	3.8
291331	0	S	S	S								25	4.5
304218	IV	R	S	R						7, 25		17	4.7
339864A	IV	R	S	R						7, 25		17	3.8
339868D	IV	R	S	R						7, 25		17	3.3
339981	IV	R	R	S						7, 17		25	3.1
339995	III	S	S	R						25		7	3.7
340017	III	R	R	S						7, 17		25	3.8
340034	IV	R	R	S						7, 17		25	3.5
340035	IV	R	R	R	S	R	R	R	R	7, 17, 25	31, 30, 33, 38	NT	—
340037	IV	R	R	R						7, 17, 25	NT31, 30T, 30, 33	NT	—
340046	IV	R	R	R	S		S			7, 17, 25		31	3.8
340049	IV	S	S	R						25		7	4.8
342004	IV	R	S	S	S					7		30T	3.5
342438	III	S	S	S								25	3.8
360841	III	R	S	R						7, 25		17	3.7
360845	IV	R	R	R	S		S			7, 17, 25		31	3.7
360846	IV	S	R	R						17, 25		7	6.0
360957	00	S	S	R	S					25		30T	4.2
361078	00	S	S	R						25		17	3.7
361103	IV	R	S	R	S					7, 25		30T	3.7
361122	00	R	R	S						7, 17		25	8.6
372404A	I	S	R	S						17		7	4.8
378682A	IV	R	R	R	S		S			7, 17, 25		31	4.3
378682B	IV	R	R	R	S		S			7, 17, 25		31	3.8
378682C	IV	R	R	R	R		S			7, 17, 25	30T	31	4.1
379556	IV	S	S	R						25		7	5.7
379560	IV	S	S	R	S					25		30T	3.3
379563	000	S	S	R						25		17	3.8
384467	00	S	S	R						25		17	7.3
391581A	II	R	S	S						7		25	6.7
391581B	I	R	S	S						7		25	7.0
391585	II	S	S	S								25	5.2
391589A	I	S	S	S								25	4.8
391589B	I	S	S	S								25	4.3
393537	III	R	R	R	R		S			7, 17, 25	30T	31	3.8
393538	III	R	R	R	R	R	S	R	R	7, 17, 25	30, 33, 38	NT	—
393540	IV	R	R	R	R		S			7, 17, 25	30T	31	3.7
393541A	III	R	R	S						7, 17		25	4.2
393541B	II	R	R	S						7, 17		25	4.3

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae*.

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
398191	IV	R	R	S						7, 17		25	3.7
398198	IV	R	R	S						7, 17		25	3.7
398204	IV	R	R	S						7, 17		25	5.2
398206	IV	S	S	R						25		17	5.2
398208	IV	S	S	S								25	4.0
398214	IV	S	S	S								25	4.7
398215	IV	S	R	R						17, 25		7	4.8
398223	IV	R	R	R	R	R	S	R	S	7, 17, 25	30T, 30	NT	—
398225	IV	S	S	R						25		17	6.7
398227	III	S	S	R						25		17	3.5
398230	III	S	S	R						25		17	3.5
398242	IV	S	S	R	S					25		30T	3.5
398243	IV	S	S	R	S					25		30T	3.7
398244	IV	S	S	R						25		17	3.3
398245	IV	S	S	R						25		17	4.7
398248	IV	R	R	S						7, 17		25	5.0
398249	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
398250	IV	S	S	R						25		17	2.7
398251	IV	S	S	R						25		17	5.3
398272	IV	S	S	R	S					25		30T	3.7
398273	IV	S	R	R						17, 25		7	7.0
398275	III	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
398276	IV	R	R	R	R		S			7, 17, 25	30T	31	3.0
398282	IV	R	R	S						7, 17		25	3.0
398295	III	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
398297	III	S	S	R						25		17	3.3
398298	IV	R	R	R	R		S			7, 17, 25	30T	31	3.0
398299	IV	R	R	R	S		S			7, 17, 25		31	3.1
398303	IV	S	S	S								25	3.8
398305	IV	R	R	S						7, 17		25	4.0
398306	IV	R	R	R	R		S			7, 17, 25	30T	31	3.5
398311	III	R	R	S						7, 17		25	4.0
398312	III	R	S	R						7, 25		17	5.0
398317	IV	R	S	R						7, 25		17	3.3
398321	IV	S	R	S						17		25	3.3
398349	IV	S	S	S								25	4.0
398355	IV	S	S	S								25	3.3
398359	IV	S	S	R						25		17	3.5
398371	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
398375	IV	S	S	R						25		17	3.7
398380	IV	S	R	R						17, 25		7	7.0
398386	IV	R	S	R						7, 25		NT	—
398389	IV	R	S	R						7, 25		17	3.2
398395	III	R	S	R						7, 25		17	3.2
398440	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
398451	III	R	S	R						7, 25		NT	—
398464	IV	S	S	S								25	3.8
398494	III	R	R	S						7, 17		25	3.7

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae.*

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
398495	IV	R	R	R	S					7, 17, 25		30T	3.5
398540	IV	R	R	R	R		S			7, 17, 25	30T	31	2.5
398551	IV	S	S	S								25	4.2
398565	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
398572	IV	R	R	S						7, 17		25	5.3
398609	IV	R	S	R						7, 25		17	4.3
398621	IV	R	R	S						7, 17		25	4.2
398631	IV	R	S	R						7, 25		17	3.5
398636	IV	R	R	S						7, 17		25	4.0
398640	IV	R	S	S						7		25	3.7
398643	III	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
398656	IV	S	S	R						25		17	3.5
398664	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
398666	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
398667	IV	R	R	S						7, 17		25	5.3
398674	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
398680	IV	R	R	R	R		S			7, 17, 25	30T	31	2.5
398681	IV	S	R	S						17		25	7.3
398693	III	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
398694	III	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
398697	III	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
398700	IV	S	S	S								25	4.5
398702	III	S	S	R						25		17	4.5
398706	IV	R	S	S	S					7		30T	4.0
398710	III	R	R	S						7, 17		25	3.5
398717	IV	R	R	S						7, 17		25	3.5
398737	IV	S	R	S						17		25	3.3
398741	IV	R	S	R	S					7, 25		30T	3.0
398747	III	R	R	S						7, 17		25	4.2
398748	III	R	R	S						7, 17		25	4.0
398752	III	R	S	R						7, 25		17	4.2
398755	III	R	S	R						7, 25		17	3.2
398763	III	S	S	R						25		17	5.0
398764	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
398765	IV	R	R	S						7, 17		25	3.5
398772	IV	R	R	S						7, 17		25	3.8
398773	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
398774	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
398775	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
398776	III	R	R	S						7, 17		25	6.2
398790	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
398791	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
398803	IV	R	R	S						7, 17		25	4.5
398804	IV	S	S	S	S							30T	3.7
398805	IV	R	S	R	S					7, 25		30T	3.3
398806	III	S	S	S								25	3.7
398807	IV	S	S	S								25	4.8
398808	IV	R	S	S						7		25	4.2

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae*.

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
398813	III	R	S	S						7		25	4.0
398814	III	S	S	S								31	3.1
398815	IV	R	S	S						7		25	3.7
398816	IV	S	S	S								25	5.3
398820	IV	R	S	S						7		25	3.8
398830	IV	S	S	R						25		17	4.5
398841	III	S	S	R						25		17	3.0
398843	IV	S	S	R						25		17	3.7
398847	IV	S	S	R						25		17	3.7
398854	IV	R	R	S						7, 17		25	4.7
398857	IV	R	R	S						7, 17		25	3.7
398867	IV	R	R	S						7, 17		25	7.7
398868	IV	R	R	S						7, 17		25	7.5
398875	IV	S	R	R						17, 25		7	6.7
398880	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
398884	IV	S	S	R						25		7	7.9
398887	IV	R	S	R						7, 25		17	3.3
398919	IV	S	S	R						25		17	3.3
398930	III	R	R	S						7, 17		25	4.2
398935	IV	S	S	R						25		17	6.3
398940	IV	R	R	R	R	R	R	S	S	7, 17, 25	31, 30T, 30	NT	—
398941	IV	S	S	R						25		17	4.5
398944	IV	R	R	R	R	R	R	S	S	7, 17, 25	31, 30T, 30	NT	—
398946	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
398953	IV	R	R	S						7, 17		25	4.0
398955	III	R	R	S						7, 17		25	4.2
398959	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
398970	IV	R	S	R	S					7, 25		30T	3.7
398975	IV	R	S	S	S					7		30T	4.0
398982	IV	R	S	S						7		25	5.3
398985	IV	R	R	S						7, 17		25	3.8
398987	IV	R	S	R						7, 25		17	3.2
398988	IV	S	R	R						17, 25		7	3.4
398996	IV	R	R	R	R		R	S		7, 17, 25	31, 30T	NT	—
399001	IV	R	S	R	S					7, 25		30T	2.8
399004	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
399006	IV	R	R	R	S					7, 17, 25		30T	2.8
399008	III	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
399015	IV	R	R	R	R	R	R	S	S	7, 17, 25	31, 30T, 30	NT	—
399016	IV	R	R	S						7, 17		25	2.7
399017	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
399018	IV	R	S	R	S					7, 25		30T	3.0
399019	IV	R	S	R	S					7, 25		30T	2.8
399020	IV	R	S	S						7		25	3.7
399022	IV	R	R	R	R		S			7, 17, 25	30T	31	3.8
399023	IV	S	S	R						25		17	3.3
399027	IV	R	S	S						7		25	3.8
399028	IV	S	S	S								25	3.5

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae*.

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
399035	IV	S	S	S								25	4.0
399036	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
399051	IV	R	S	R						7, 25		17	3.5
399066	IV	S	S	S								25	4.2
399073	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
399074	0	S	S	R						25		7	4.2
399077	III	R	R	R	S					7, 17, 25		30T	3.5
399079	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
399080	III	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
399092	IV	S	S	R						25		7	7.0
399119	IV	R	R	S						7, 17		25	3.5
404159	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
404163	IV	S	R	R						17, 25		7	5.2
404169A	I	R	R	S						7, 17		25	5.5
404169B	III	R	R	S						7, 17		25	3.6
404182	III	R	R	S						7, 17		25	4.3
404183	IV	R	S	S	S					7	30T	30T	3.8
404185	IV	R	S	S						7		25	3.8
404186	III	S	R	S	S					17	30T	30T	3.5
404188B	III	S	S	S								25	3.5
404196	II	S	S	S								25	3.7
404197	IV	S	S	S								25	3.3
405690	II	R	R	S						7, 17		25	4.0
406708	IV	S	S	S								25	3.8
407653	III	S	S	S								25	6.5
407658A	IV	R	S	S						7		25	3.5
407658B	IV	R	R	S						7, 17		25	4.0
407658C	IV	R	S	S						7		25	3.8
407659A	II	R	S	R						7, 25		17	4.8
407659B	III	R	S	R						7, 25		NT	—
407661	II	R	S	S						7		25	3.8
407701	I	S	S	S								25	4.0
407702	0	S	S	S								25	5.8
407705	I	S	S	S								25	3.8
407707	0	R	S	S						7		25	3.8
407708A	0	S	S	S								25	4.7
407708B	0	S	S	S								25	5.2
407709	0	R	S	R						7, 25		17	6.0
407711A	II	S	S	S								25	5.2
407716	I	S	S	S								25	5.3
407718	I	S	S	S								25	4.0
407719	II	R	S	S						7		25	4.5
407720	II	R	S	S						7		25	3.8
407721	II	R	S	R						7, 25		17	4.8
407723	I	R	S	S						7		25	6.2
407727	IV	R	S	S						7		25	3.2
407770	IV	R	S	R	S					7, 25		30T	3.5
407772A	IV	R	S	R	S					7, 25		30T	3.8

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae*.

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
407772B	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
407773A	IV	R	S	S	S					7		30T	4.0
407773B	IV	R	S	R	S					7, 25		30T	3.8
407776	IV	R	R	S						7, 17		25	3.7
407778A	IV	R	R	R	R		S			7, 17, 25	30T	31	3.8
407778B	IV	S	R	S						17		7	4.0
407778C	IV	R	R	S						7, 17		25	3 8
407781A	IV	R	R	R	R		R			7, 17, 25	31, 30T	NT	—
407781B	IV	R	R	R	R	R	S	R	S	7, 17, 25	30T, 33	NT	—
407783	IV	R	R	S						7, 17		25	5.3
407786A	IV	S	R	S						17		25	3 3
407788A	IV	R	R	S						7, 17		25	5.0
407788B	IV	R	S	S						7		25	3.5
407795B	IV	R	S	R	S					7, 25		30T	3.7
407796	IV	S	S	R						25		7	7.9
407805A	IV	R	R	S						7, 17		25	5.2
407805C	IV	S	R	S						17		25	3.8
407805D	IV	R	R	S						7, 17		25	3.5
407806A	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
407806B	IV	S	S	S								25	3.0
407812	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
407817	IV	R	R	R						7, 17, 25	NT31, 30T, 30, 33	ND	—
407818A	IV	S	R	S						17		25	3.5
407818B	IV	R	S	R	S					7, 25		30T	3.3
407820	IV	R	S	S						7		25	3.8
407821A	IV	R	R	S						7, 17		25	3.8
407823	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
407827	IV	R	R	S						7, 17		25	3.3
407832A	IV	R	S	R						7, 25		17	4.5
407832B	IV	R	S	R						7, 25		17	4.7
407833A	IV	R	R	S						7, 17		25	3.7
407845A	IV	S	S	S								25	3.8
407845B	IV	R	S	R						7, 25		17	4.5
407847	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
407848	IV	R	S	R	S					7, 25		30T	3.8
407850	III	S	S	S								25	3.8
407861A	III	S	R	S						17		25	2.7
407861B	III	R	R	S						7, 17		25	5.5
407861C	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
407862	IV	R	S	S						7		25	3.8
407863	IV	S	S	R						25		17	3.8
407867A	IV	S	S	S								25	4.3
407867B	IV	R	S	S						7		25	3.8
407869A	IV	R	R	R	S					7, 17, 25		30T	3.8
407869B	IV	S	S	S								25	3.7
407872C	IV	S	S	S								25	3.2
407873	IV	S	S	S	S							30T	4.0
407877A	IV	R	S	R	S					7, 25		30T	2.8

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae.*

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
407877B	IV	R	S	R	S					7, 25		30T	3.0
407883	IV	R	S	S						7		25	5.5
407892A	IV	S	S	S								25	3.8
407892C	IV	R	R	S						7, 17		25	3.7
407895	IV	S	S	S	S							30T	3.5
407897	IV	R	S	S						7		25	5.7
407900	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
407904	IV	S	S	R						25		17	7.0
407906	IV	R	S	R	S					7, 25		30T	3.5
407907A	III	R	S	S						7		25	3.5
407907B	IV	R	R	S						7, 17		25	4.8
407908	IV	R	S	S						7		25	3.0
407913A	IV	R	S	R	S					7, 25		30T	2.8
407913B	IV	R	S	R	S					7, 25		30T	3.2
407914A	IV	S	S	R	S					25		30T	3.8
407914C	IV	S	S	R						25		17	4.5
407914D	IV	R	R	S						7, 17		25	3.2
407917	IV	S	R	R	S					17, 25		30T	3.7
407918A	IV	S	S	R						25		17	4.5
407918B	IV	S	S	R						25		17	3.8
407922	III	R	S	S						7		25	3.7
407924	IV	R	S	R	S					7, 25		30T	3.5
407926A	III	R	R	S						7, 17		25	4.0
407926B	III	S	S	S								25	3.3
407927B	IV	R	S	S						7		25	3.8
407928	IV	S	S	S								25	3.2
407933	III	S	S	S	S							30T	3.7
407934	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
407937-1	IV	S	S	S								25	4.0
407939A	IV	R	R	S						7, 17		25	4.0
407946-2	IV	S	R	S						17		25	6.3
407947	IV	S	S	S								25	7.2
407949	IV	R	S	S						7		25	4.0
407952A	IV	R	S	S						7		25	4.8
407952B	IV	R	S	S						7		25	4.0
407959A	IV	R	R	R	S		S			7, 17, 25		31	3.7
407959B	IV	R	S	R	S					7, 25		30T	3.8
407960A	IV	R	S	R	S					7, 25		30T	3.8
407960B	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
407966B	IV	S	S	S								25	6.3
407973A	IV	R	R	S						7, 17		25	5.3
407974B	III	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
407975A	IV	R	S	R	S					7, 25		30T	3.8
407976A	IV	S	S	S								25	6.2
407976B	IV	S	S	S								25	5.5
407977	IV	R	S	R	S					7, 25		30T	2.8
407979	IV	S	S	R						25		7	4.8
407981A	IV	S	S	R	S					25		30T	3.5

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae*.

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
407981B	IV	S	S	R						25		17	4.2
407981C	IV	S	S	R						25		17	4.0
407985	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
407986A	IV	S	R	S						17		25	4.0
407988A	IV	S	S	S								25	6.3
407988B	IV	R	S	R	S					7, 25		30T	4.3
407991	IV	S	S	S								25	6.3
407992	IV	S	S	S								25	4.5
407996	IV	R	R	S						7, 17		25	4.2
407998A	IV	R	R	S						7, 17		25	4.5
407998C	IV	R	R	S						7, 17		25	4.2
408004-1	IV	R	R	R	S	S	R			7, 17, 25	31	NT	—
408008	IV	S	S	S								25	4.7
408010-1	IV	S	S	S								25	7.8
408014	IV	R	R	S						7, 17		25	4.2
408015	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
408016A	IV	R	S	R	S					7, 25		30T	3.2
408016B	IV	R	R	R						7, 17, 25	NT31, 30T, 30, 33	NT	—
408017	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
408019B	IV	S	S	R	S					25		30T	3.8
408019C	IV	R	R	S						7, 17		25	3.8
408020A	IV	R	R	R	S		R			7, 17, 25	31	NT	—
408020B	IV	R	R	S						7, 17		25	5.3
408020C	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
408020D	IV	R	S	S						7		25	4.5
408021	IV	S	S	R						25		17	5.8
408029	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
408032B	IV	R	R	S						7, 17		25	4.2
408036	IV	R	R	S						7, 17		25	4.5
408048A	III	S	R	S						17		25	3.5
408048B	IV	S	S	R	S					25		30T	3.7
408050A	III	S	S	R						25		7	7.2
408050B	IV	S	S	R						25		17	3.5
408052A	III	S	S	S								25	3.5
408055A	IV	S	S	S								25	3.8
408055B	IV	R	S	S						7		25	5.3
408055C	IV	R	S	S						7		25	5.0
408057	IV	S	R	S	S					17		30T	3.3
408058	IV	S	S	S								25	6.6
408062	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
408064	IV	R	S	R						7, 25		17	4.7
408067A	IV	R	R	S						7, 17		25	4.2
408068A	IV	S	R	R						17, 25		7	3.5
408068B	IV	R	R	R	S					7, 17, 25		30T	2.7
408074A	IV	R	R	R						7, 17, 25	NT31, 30T, 30, 33	ND	—
408074B	IV	R	R	R	S					7, 17, 25		30T	3.5
408074C	IV	R	R	S						7, 17		25	4.1
408075	III	S	S	S								25	4.0

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae.*

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
408076A	IV	S	S	R						25		17	3.7
408076B	IV	R	S	R	S					7, 25		30T	3.5
408079A	IV	R	R	S	S					7, 17		30T	3.5
408089	IV	S	S	S								25	4.0
408090	IV	S	S	R						25		17	3.8
408092A	IV	R	S	R						7, 25		17	3.5
408092B	IV	R	S	S						7		25	4.0
408095A	IV	S	R	R						17, 25		7	3.3
408095B	IV	R	R	S						7, 17		25	3.0
408097	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
408103	IV	S	S	S								25	6.3
408105A	IV	R	R	S						7, 17		25	3.7
408105B	IV	R	S	S						7		25	3.2
408108	IV	R	R	R	S	R	R	S		7, 17, 25	31, 30	NT	—
408110A	IV	R	R	S						7, 17		25	4.0
408111	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
408114	IV	S	S	R						25		17	2.8
408119	IV	S	S	S								25	5.6
408124A	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
408124B	IV	R	R	S						7, 17		25	4.0
408124C	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
408124D	IV	R	S	R	S					7, 25		30T	3.7
408125A	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
408125B	IV	S	S	S								25	5.7
408131B	IV	S	S	R						25		17	6.0
408132	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
408134A	IV	R	R	S						7, 17		25	4.5
408135B	IV	R	R	S						7, 17		25	3.8
408137A	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
408138A	IV	R	R	S						7, 17		25	4.0
408138C	III	R	S	R	S					7, 25		30T	3.5
408138D	IV	S	S	S								25	5.8
408140A	IV	S	R	S						17		25	4.2
408140B	IV	R	R	S	S					7, 17		30T	2.8
407166A	IV	R	R	S						7, 17		25	3.7
408166B	IV	R	R	S						7, 17		25	4.0
408169A	IV	R	R	R	R		R			7, 17, 25	31, 30T, NT 30, 33	NT	—
408169B	IV	R	S	R	S					7, 25		30T	3.5
408169D	IV	R	S	S						7		25	3.7
408170	IV	R	S	S						7		25	4.0
408172	IV	S	S	R						25		17	7.5
408173	IV	S	S	R	S					25		30T	3.5
408178	IV	S	S	S								25	4.8
408181A	IV	S	S	S								25	5.5
408181D	IV	S	S	S								25	6.3
408184A	IV	S	S	S								25	4.7
408186B	IV	R	S	S						7		25	3.8
408187	IV	R	R	S						7, 17		25	4.0

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae*.

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
408189	IV	S	S	S								25	5.8
408194	IV	S	S	R						25		7	5.7
408196A	IV	R	S	R						7, 25		17	5.5
408196B	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
408197A	IV	R	S	R						7, 25		17	3.5
408198	IV	S	S	R						25		7	4.9
408199	IV	S	S	R	S					25		30T	4.0
408200A	IV	R	R	S						7, 17		25	4.0
408201A	IV	S	S	R						25		17	4.2
408201B	IV	R	S	S	S					7		30T	3.7
408203B	IV	S	R	S						17		25	4.0
408209C	IV	S	S	R						25		7	5.2
408210	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
408211A	IV	R	S	R	S					7, 25		30T	3.3
408211B	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
408212B	IV	S	S	S								25	3.8
408214	IV	S	S	S								25	4.2
408216B	IV	S	S	R						25		7	5.5
408221A	IV	R	R	S						7, 17		25	7.3
408221B	IV	S	S	S								25	5.7
408222B	IV	S	S	S								25	5.7
408222C	IV	R	S	R	S					7, 25		30T	3.5
408224A	IV	R	S	R	S					7, 25		30T	3.3
408224B	IV	R	R	R	R	R	R	S	S	7, 17, 25	31, 30T, 30	NT	—
408225A	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
408225B	IV	S	S	S								25	4.0
408226A	IV	S	S	S								17	5.3
408227	IV	S	S	R						25		17	3.8
408229C	IV	R	S	S						7		25	4.3
408230	IV	S	S	R						25		7	8.7
408231	IV	R	S	S						7		25	6.5
408236	IV	R	S	S						7		25	3.8
408245	IV	R	S	S						7		25	4.5
408255A	III	R	S	R	S					7, 25		30T	3.8
408255B	IV	S	R	R						17, 25		7	4.2
408258	IV	R	S	S						7		25	3.3
408259A	IV	S	S	S								25	4.3
408260B	IV	R	R	R	R	R	R	S	S	7, 17, 25	31, 30T, 30	NT	—
408265A	IV	S	R	R						17, 25		7	4.0
408265B	IV	S	S	S								25	3.0
408269A	IV	S	S	R						25		17	3.0
408269B	IV	S	S	R						25		17	3.3
408272B	IV	R	S	R	S					7, 25		30T	3.2
408272C	IV	R	S	R	S					7, 25		30T	3.5
408275	IV	R	R	S						7, 17		25	3.7
408277	IV	S	R	S						17		25	5.5
408280	IV	R	S	R	S					7, 25		30T	2.7
408281A	IV	R	R	S						7, 17		25	3.5

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae*.

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
408281B	IV	R	R	S						7, 17		25	4.3
408287	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
408288	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
408289	IV	R	S	R	S					7, 25		30T	3.5
408292	IV	R	S	R	S					7, 25		30T	4.0
408293-1	IV	S	R	R						17, 25		7	4.2
408294A	IV	S	S	S								25	4.2
408295A	IV	R	S	S						7		25	3.5
408295B	IV	S	S	R						25		17	6.2
408296A	IV	S	S	R						25		17	4.2
408298A	IV	S	S	S								25	5.7
408298B	IV	S	S	S	S							30T	4.5
408299	IV	S	S	S								25	6.5
408300	IV	R	S	S						7		25	3.5
408301	IV	S	S	S								25	4.0
408302	IV	S	S	S								25	5.3
408306	IV	S	R	S						17		25	4.8
408307A	IV	S	R	R						17, 25		7	4.2
408307C	IV	S	R	R						17, 25		7	3.3
408309	IV	S	R	R						17, 25		7	5.2
408310A	IV	S	S	R						25		7	5.2
408310B	IV	R	S	S						7		25	4.5
408311-1	IV	R	S	R						7, 25		NT	—
408312A	III	S	S	R						25		17	3.5
408316	IV	R	R	S						7, 17		25	5.2
408318A	IV	S	S	R						25		17	3.5
408319A	IV	R	R	R	R		S			7, 17, 25	30T	31	3.5
408319B	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
408319C	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
408320	IV	R	R	S						7, 17		25	5.2
408329	IV	R	R	S						7, 17		25	8.0
408333	IV	R	R	S						7, 17		25	4.0
408334	IV	S	S	S								25	4.9
408335A	IV	R	R	S						7, 17		25	5.7
408335B	IV	S	S	R						25		17	3.2
408338	IV	S	S	S								25	4.5
415072	I	R	S	S						7		25	4.8
415073A	I	S	S	S								25	4.2
415073B	II	S	S	S								25	5.3
415074	III	R	R	S						7, 17		25	4.2
416753	III	S	S	S								25	3.6
416757	I	R	R	R						7, 17, 25	NT31, 30T, 30, 33	NT	—
416769A	IV	R	S	R						7, 25		17	4.5
416769C	IV	S	S	R						25		17	3.7
416773	II	S	S	R	S					25		30T	4.0
416776	I	S	S	R	S					25		30T	4.0
416779	IV	S	S	R						25		17	5.0
416784	III	S	S	R						25		17	4.0

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae.*

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
416791	II	R	S	R						7, 25		17	4.5
416801	IV	S	S	R						25		17	3.3
416805	I	S	S	R						25		17	3.2
416823	III	R	S	S						7		25	3.8
416829	IV	S	S	R						25		17	4.7
416830	II	R	R	S						7, 17		25	7.3
416835	II	R	S	S						7		25	7.5
416839	IV	R	S	S						7		25	3.7
416840	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
416841	IV	R	S	R						7, 25		17	4.5
416845	0	S	S	R	S					25		30T	3.8
416856	III	R	S	R						7, 25		17	3.7
416857	IV	S	S	R	S					25		30T	4.2
416859	IV	S	S	R						25		17	4.2
416862	III	S	R	S	S					17		30T	4.0
416863	II	S	S	R						25		17	6.3
416864	IV	S	S	R						25		17	4.9
416866	II	S	S	R						25		17	4.0
416868B	III	R	S	R	S					7, 25		30T	3.7
416869	IV	R	S	R						7, 25		17	4.2
416872	IV	S	S	R						25		17	5.3
416875	II	R	S	R						7, 25		17	3.7
416878	I	R	S	S						7		25	3.8
416889	III	R	S	R						7, 25		17	3.8
416890	0	R	S	S						7		25	5.2
416892	III	R	S	R	S					7, 25		30T	4.0
416896	III	S	S	R						25		17	3.8
416898	III	R	S	S						7		25	5.2
416904B	II	S	R	S	S					17		30T	4.0
416910	I	R	S	R						7, 25		17	3.8
416911	I	S	S	R						25		7	4.0
416913	IV	S	S	R						25		7	7.0
416914	IV	R	S	R						7, 25		17	3.2
416915	I	R	S	R						7, 25		17	3.5
416916	III	R	S	R						7, 25		17	3.2
416918	III	R	R	R						7, 17, 25	NT31, 30T, 30, 33	NT	—
416920	II	R	S	R						7, 25		17	4.0
416923	I	S	R	S						17		25	5.7
416929	II	S	R	S						17		25	8.6
416930	0	S	R	R						17, 25		7	5.5
416946	I	R	S	R						7, 25		17	3.3
416950	IV	S	S	R						25		17	7.0
416952	III	S	R	S						17		25	5.5
416953	II	R	S	S						7		25	4.3
416954	III	S	R	R						17, 25		7	6.7
416958	IV	S	S	R						25		17	3.8
416959	IV	R	S	S						7		25	3.7
416963	I	R	S	S						7		25	3.7

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae.*

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
416965	IV	R	S	R						7, 25		17	3.0
416967	III	S	R	S						17		25	7.3
416968	IV	R	S	R						7, 25		17	3.2
416976	0	R	S	S	S					7		30T	4.0
416978	I	S	S	R	S					25		30T	4.2
416983	IV	R	R	R						7, 17, 25	NT31, 30T, 30, 33	NT	—
416984	IV	R	S	R						7, 25		17	3.3
416985	I	R	S	R						7, 25		NT	—
416987	IV	R	S	R						7, 25		17	3.8
416988	III	S	S	R						25		17	3.2
416991	III	S	S	R						25		17	3.3
416992	IV	S	S	R						25		17	2.8
416993	III	S	S	R						25		17	3.2
416997	IV	R	S	R	S					7, 25		30T	3.2
417001	IV	S	S	R						25		17	3.0
417002	IV	S	S	R						25		17	4.2
417003	IV	S	S	R	S					25		30T	3.8
417004	IV	R	S	S						7		25	3.5
417005	IV	R	R	R						7, 17, 25	NT31, 30T, 30, 33	NT	—
417010	III	S	S	R						25		7	7.0
417012	I	S	S	R						25		17	3.3
417015	III	R	S	R						7, 25		17	3.0
417020	II	R	S	S						7		25	3.5
417022	IV	R	S	R	S					7, 25		30T	4.0
417032	III	R	S	R						7, 25		17	3.7
417033B	IV	S	S	R						25		17	4.0
417035	IV	S	S	R						25		17	4.2
417042	II	S	S	R						25		17	4.0
417050	II	R	S	R						7, 25		17	5.8
417056	IV	S	S	R						25		7	7.9
417062	II	S	R	R						17, 25		7	3.4
417070	IV	S	S	R						25		17	4.2
417071	IV	S	S	R						25		7	8.7
417079	III	S	R	S						17		7	4.9
417082	II	S	S	R						25		7	6.3
417086B	IV	S	S	S								25	4.0
417087	II	S	S	R						25		17	4.7
417092	IV	R	S	S						7		17	3.5
417095	0	R	S	R						7, 25		17	3.7
417101	II	R	S	R						7, 25		17	4.2
417102A	IV	S	S	R						25		17	4.2
417102B	IV	S	S	R						25		17	4.0
417135A	IV	S	R	S						17		7	6.4
417137	III	R	R	R	R		S			7, 17, 25	30T	31	3.8
417138	II	S	R	S						17		25	5.0
417140	II	S	S	S								25	7.2
417142	II	R	S	S						7		25	3.5
417143	I	R	S	R						7, 25		17	3.5

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae*.

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
417151	II	S	S	R						25		17	4.3
417152	III	R	S	R						7, 25		17	3.3
417154	II	S	S	S								25	3.7
417160	II	R	S	R						7, 25		17	3.0
417161	III	R	S	R						7, 25		17	3.7
417162	III	S	S	R						25		17	5.5
417173	II	R	S	R	S					7, 25		30T	3.8
417175	III	R	S	R						7, 25		17	2.7
417176	IV	R	S	R						7, 25		17	3.7
417177	III	R	S	R						7, 25		17	3.8
417178	III	S	S	R						25		17	3.7
417180	IV	R	S	R						7, 25		17	4.2
417185	II	R	S	R						7, 25		17	4.2
417186	III	R	R	S						7, 17		25	8.3
417187	0	R	S	S						7		25	3.8
417189	III	S	S	R						25		7	5.3
417191	III	S	S	R						25		7	6.0
417192	III	S	S	R						25		17	3.7
417198	III	S	S	R						25		17	5.5
417200	IV	S	S	R						25		17	3.2
417202	IV	R	S	R						7, 25		17	3.2
417207	IV	R	S	R						7, 25		17	4.3
417210	I	S	S	R						25		17	3.7
417218	II	S	S	R						25		7	5.2
417226	I	S	S	R	S					25		30T	4.0
417227	I	S	S	R						25		17	3.3
417228	I	S	S	R	S					25		30T	4.2
417229	III	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
417230	IV	S	S	R						25		7	7.2
417231	IV	S	S	R						25		17	4.8
417233	IV	R	R	S						7, 17		25	6.2
417244	III	R	S	S						7		25	3.7
417245	IV	R	S	S						7		25	3.0
417246	II	S	S	R						25		17	3.2
417254	IV	R	S	R						7, 25		17	4.3
417255	II	R	S	R						7, 25		17	3.7
417268	II	R	R	S						7, 17		25	5.8
417274	II	S	S	R						25		17	3.5
417279	IV	S	S	R						25		17	3.5
417283	IV	R	S	R						7, 25		17	3.7
417296	I	R	S	S						7		25	3.0
417298	IV	S	S	R						25		17	3.7
417300	I	S	S	R						25		17	4.3
417303	III	R	S	R						7, 25		17	3.7
417315	II	R	S	R						7, 25		17	3.5
417324B	IV	S	R	R						17, 25		7	5.0
417328	III	S	S	R						25		17	5.0
417336	IV	R	S	R						7, 25		17	3.3

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae.*

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
417354	III	R	S	R						7, 25		17	3.2
417355A	II	S	S	R						25		17	4.2
417355B	III	R	S	R						7, 25		17	4.2
417364	III	S	S	R						25		17	4.0
417367	IV	R	S	R	S					7, 25		30T	4.0
417368	IV	R	S	R						7, 25		17	3.0
417371	IV	S	S	R						25		17	4.3
417380	IV	R	R	S						7, 17		25	4.8
417391	0	S	R	R						17, 25		7	6.3
417393	III	S	S	S								25	4.3
417400	IV	R	R	S						7, 17		NT	—
417412	IV	R	R	R	R		S			7, 17, 25	30T	31	3.8
417414B	IV	R	R	S						7, 17		25	4.2
417417	IV	R	S	S						7		25	4.8
417424	IV	R	S	R	S					7, 25		30T	3.8
417431	IV	S	S	R						25		17	4.0
417448	0	R	S	S						7		25	4.3
417453	I	R	S	R						7, 25		17	3.8
417455	II	S	R	S						17		25	6.0
417458	0	S	S	R	S					25		30T	4.0
417459	II	S	S	R						25		17	3.0
417479	IV	R	S	R						7, 25		17	3.0
417480	IV	R	S	R	S					7, 25		30T	4.3
417485	III	S	S	R						25		17	4.0
417487	II	S	S	R						25		17	4.3
417488	IV	S	S	R						25		17	3.2
417512A	00	S	S	R						25		17	3.8
417512B	00	S	S	R						25		17	3.8
417514	0	S	S	R						25		17	7.7
417520	II	S	R	S						17		25	4.3
417526	III	S	S	S								25	8.0
417547	00	R	S	S						7		25	7.7
417552	0	S	S	R						25		17	7.0
417555	0	S	S	S								25	5.2
417560	0	S	S	R						25		17	8.0
417564	00	S	S	R						25		17	3.8
417565	000	S	S	R	S					25		30T	4.5
419043	IV	S	S	S								25	4.2
420338	IV	S	S	R						25		17	3.8
423706	I	S	S	R						25		17	4.3
423707	00	R	S	R						7, 25		17	3.3
423718	00	S	S	R						25		17	4.5
423734	IV	S	S	R						25		17	4.0
423741	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
423747A	III	R	S	R	S					7, 25		30T	3.7
423748B	IV	S	S	R						25		17	4.0
423756B	IV	S	S	R						25		17	6.7
423784	IV	S	S	R						25		17	5.5

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae.*

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
423788	IV	S	S	R						25		7	8 0
423789	IV	R	S	R	S					7, 25		30T	2.3
423790	IV	S	S	R						25		17	4.0
423791	IV	S	S	S								25	3 5
423792	IV	R	R	S						7, 17		25	3.8
423799B	IV	R	S	S						7		25	5.2
423802	IV	S	S	R						25		17	4.2
423808A	IV	S	S	R						25		7	7.7
423808B	IV	R	R	S						7, 17		25	4.0
423811	IV	R	S	R						7, 25		17	3.7
423814A	III	S	S	R						25		17	3.7
423818	III	R	S	R						7, 25		17	4.0
423826B	III	S	S	R	S					25		30T	4.0
423827A	IV	R	R	R						7, 17, 25	NT31, 30T, 30, 33	NT	—
423833A	IV	R	S	R						7, 25		17	3.3
423836	IV	R	S	R						7, 25		17	3.8
423837A	IV	R	R	R	R		S			7, 17, 25	30T	31	3.3
423842	IV	R	S	S						7		25	3.5
423848	IV	S	S	R						25		17	4.0
423850	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
423858	IV	R	R	R	R	R	S	R	R	7, 17, 25	30T, 30, 33, 38	NT	—
423864	0	S	S	R						25		17	3.5
423868	I	S	R	S						17		25	6.2
423870	II	S	S	R						25		17	5.3
423871	II	R	R	R	R	S	R	R	R	7, 17, 25	31, 30T, 33, 38	NT	—
423872	I	S	S	R						25		17	4.0
423877	IV	R	S	R						7, 25		17	3.8
423881	II	R	S	S						7		25	4.7
423885	III	R	R	R	R		S			7, 17, 25	30T	31	3.0
423889	III	S	R	R						17, 25		7	5.7
423890A	II	S	S	R						25		7	6.0
423890B	IV	S	S	R	S					25		30T	4.0
423893	IV	R	S	R	S					7, 25		30T	3.5
423896	III	S	S	R						25		17	3.8
423902	IV	R	S	R						7, 25		17	3.2
423910	IV	R	R	R	R		S			7, 17, 25	30T	31	3.8
423929	IV	S	R	R						17, 25		7	6.7
423930A	IV	S	S	R						25		7	6.3
423932	II	S	S	R						25		17	4.0
423933	II	R	S	S						7		25	3.5
423939	II	R	S	R						7, 25		17	4.7
423941	II	S	S	R						25		17	3.2
423946	III	S	S	R						25		17	3.5
423948B	III	R	S	S						7		25	3.0
423949	I	R	S	R						7, 25		17	4.0
423951	II	R	S	R						7, 25		17	3.8
423954	0	S	S	R						25		17	3.2
423974	III	R	S	R	S					7, 25		30T	5.6

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae*.

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
423975	IV	R	R	S						7, 17		17	3.8
423977	IV	S	S	R						25		17	3.3
423979	IV	S	S	R						25		17	3.7
423983	IV	S	S	R	S					25		30T	3.7
423987B	III	R	S	R	S					7, 25		30T	4.7
424024	IV	S	S	R						25		17	4.7
424078	III	R	S	S						7		25	4.2
424134	III	S	S	S								25	3.8
424135	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
424140	IV	S	S	R						25		17	4.2
424143	III	R	R	S						7, 17		25	3.8
424148	0	S	S	R						25		17	4.2
424149	IV	R	S	R						7, 25		17	4.0
424150	IV	R	S	S						7		25	4.8
424151	IV	R	S	R						7, 25		17	4.0
424152	IV	R	S	R						7, 25		25	3.8
424153	IV	S	S	S								25	6.7
424154A	IV	S	R	S	S					17		30T	3.8
424154B	IV	R	S	R	S					7, 25		30T	4.3
424155A	III	S	S	R						25		17	3.3
424155B	IV	S	S	R						25		17	3.7
424156A	IV	S	S	S								25	5.8
424158	IV	S	R	R						17, 25		7	7.8
424159A	III	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
424159B	IV	S	S	S								25	4.3
424159C	IV	R	S	R						7, 25		17	3.2
424160	IV	R	R	S						7, 17		25	3.5
424162	IV	S	S	S								25	6.8
424164A	IV	S	S	S								25	3.5
424165	IV	S	S	S								25	7.5
424167	IV	S	S	S								NT	—
424168A	IV	S	S	S								25	3.6
424168B	IV	S	S	S								25	3.8
424168C	IV	S	S	S								25	6.5
424169A	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
424169B	IV	R	S	R						7, 25		25	3.5
424171A	IV	R	S	R	S					7, 25		30T	3.8
424171B	IV	R	R	R	S					7, 17, 25		30T	4.0
424172A	IV	R	R	S						7, 17		25	6.5
424173	IV	S	S	S								25	7.0
424175	IV	R	R	S						7, 17		25	7.8
424177	IV	S	S	S								25	6.3
424179A	IV	S	S	S								25	7.2
424179B	IV	R	R	S						7, 17		25	7.3
424180	IV	S	S	S								25	5.5
424181	IV	S	R	S						17		25	6.3
424184	IV	S	S	S								25	5.3
424188A	IV	R	R	S						7, 17		25	9.0

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae.*

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
424188B	IV	S	S	S								25	7.3
424189	IV	S	S	S								25	7.3
424190	00	R	R	S						7, 17		25	6.5
424206	I	S	S	S								25	4.5
424207	00	S	S	R						25		7	4.8
424214A	IV	S	S	R						25		17	3.5
424214C	IV	S	S	R	S					25		30T	3.5
424219A	IV	S	S	R						25		17	3.0
424219B	IV	S	S	S								25	7.0
424221B	IV	S	S	R						25		17	3.0
424222A	IV	R	R	S						7, 17		25	5.3
424234A	IV	R	S	R						7, 25		17	3.7
424234B	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
424237A	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
424238	IV	R	R	R	R	R	R	S	S	7, 17, 25	31, 30T, 30	NT	—
424239	IV	S	S	R						25		17	4.7
424244	IV	S	S	R						25		17	4.3
424247A	III	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
424247B	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
424249C	IV	R	R	R	R	S	R	S		7, 17, 25	30T, 31	NT	—
424249D	IV	S	S	R						25		17	3.7
424250B	IV	R	S	R						7, 25		17	5.3
424254	IV	R	S	S						7		25	4.7
424255C	IV	S	S	R						25		7	3.7
424257B	IV	S	S	S								25	3.3
424264	IV	S	S	R	S					25		30T	3.8
424276	IV	R	R	S						7, 17		25	3.8
424278B	IV	R	S	R	S					7, 25		30T	3.8
424285A	IV	S	S	R						25		17	3.3
424285C	IV	S	S	R						25		17	3.3
424292	IV	S	S	R						25		7	7.8
424293	IV	S	S	S								25	3.7
424294A	IV	R	S	S						7		25	4.0
424294B	IV	R	S	S						7		25	3.8
424297	III	S	S	R						25		17	4.2
424298	IV	R	S	S						7		25	5.7
424305	IV	R	R	S						7, 17		ND	3.7
424316	IV	S	S	R						25		17	4.7
424317	IV	R	S	S						7		25	4.0
424320	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
424338	IV	S	S	R						25		17	4.0
424342A	IV	S	R	R						17, 25		7	5.2
424342B	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
424344	IV	R	S	S						7		25	3.8
424345	IV	S	R	R						17, 25		7	4.8
424348B	IV	S	R	S						17		25	4.9
424348C	IV	R	R	R	R		S			7, 17, 25	30T	31	3.7
424349B	IV	S	S	R						25		17	3.7

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae.*

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
424349C	IV	S	S	R						25		17	3.2
424352	IV	S	S	R						25		17	3.3
424354	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
424355	IV	R	R	R	R	R	S	R	S	7, 17, 25	30T, 30, 33	NT	—
424358	III	R	R	R	R	R	R	S		7, 17, 25	31, 30T	NT	—
424366	III	S	S	R						25		17	3.8
424367	IV	R	S	S						7		25	6.3
424389	IV	R	R	S						7, 17		25	3.8
424396	IV	R	R	S						7, 17		25	6.0
424397	IV	R	S	R						7, 25		17	3.7
424400	IV	R	S	S						7		25	3.5
424405C	IV	R	R	S						7, 17		25	3.8
424406A	IV	R	R	R	R	S	R			7, 17, 25	31, 30T	NT	—
424409	IV	R	R	R	R		R			7, 17, 25	31, 30T	NT	—
424412	IV	R	S	R						7, 25		17	3.5
424413	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
424414	IV	R	R	R	R	S	R	S		7, 17, 25	31, 30T	NT	—
424420	IV	S	S	R						25		7	6.0
424426	IV	S	S	R						25		17	3.8
424429	IV	S	S	R	S					25		30T	3.2
424430	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
424444A	III	S	S	R	S					25		30T	3.8
424444B	IV	R	S	R						7, 25		17	3.0
424450	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
424452	IV	S	R	R						17, 25		7	4.8
424458	IV	R	S	S						7		25	3.5
424468	IV	R	S	R						7, 25		17	4.2
424477	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
424479	IV	R	R	R	R	R	R	S	S	7, 17, 25	31, 30T, 30	NT	—
424487B	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
424489A	IV	S	S	R						25		17	5.0
424489B	IV	S	S	R						25		17	5.5
424495	IV	R	S	R	S					7, 25		30T	3.0
424498	IV	R	S	R	S					7, 25		30T	4.0
424499A	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
424499B	IV	S	S	S								25	4.2
424499C	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
424499D	IV	R	S	S						7		25	3.8
424500	IV	S	S	S								25	7.2
424503	IV	R	S	S						7		25	5.2
424504A	IV	S	S	S	S							30T	4.0
424504B	IV	R	S	R						7, 25		17	3.5
424505	IV	R	S	S						7		25	5.5
424506	IV	R	R	S						7, 17		25	4.2
424509	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
424511	IV	S	S	S								25	3.8
424512	IV	S	R	S						17		25	3.8
424513	IV	S	S	S								25	6.2

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae.*

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
424516	IV	S	S	S								25	5.6
424517A	IV	S	S	R						25		17	4.3
424517B	IV	R	S	R						7, 25		17	4.2
424518	IV	S	S	S								25	5.6
424519	IV	S	S	S								25	6.2
424520	IV	S	S	S								25	5.3
424521A	IV	S	S	S								25	3.8
424522	IV	R	S	R	S					7, 25		30T	4.0
424523A	IV	S	R	R						17, 25		7	8.2
424523B	IV	R	R	S						7, 17		25	5.7
424524	IV	S	S	R						25		17	5.0
424525	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
424527	IV	R	S	R	S					7, 25		30T	3.3
424528	IV	S	S	S								25	3.8
424529	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
424530	IV	R	R	S						7, 17		25	5.2
424531	IV	R	R	R	R	R	R	R	S	7, 17, 25	31, 30T, 30, 33	NT	—
424532	IV	S	S	S								25	4.0
424533	IV	R	R	R	R	R	R	R	R	7, 17, 25	31, 30T, 30, 33, 38	NT	—
424535A	IV	S	S	R						25		17	3.5
424535B	IV	R	R	S						7, 17		25	4.2
424536	IV	S	S	S								25	3.0
424537	IV	S	S	S								25	6.5
424538	IV	S	R	R						17, 25		7	4.8
424539	IV	S	S	S								25	7.3
424540	III	R	R	R						7, 17, 25	NT31, 30T, 30, 33	NT	—
424541	III	S	S	S								25	4.0
424542	IV	R	S	R						7, 25		17	4.2
424543	IV	S	S	S								25	7.0
424544	IV	S	R	S	S					17		30T	3.7
424545	IV	S	S	S								25	4.2
424546A	IV	S	S	S								25	3.7
424546B	IV	S	R	R						17, 25		7	4.9
424547	IV	S	R	R						17, 25		7	5.7
424548	IV	S	S	S								25	7.0
424549A	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
424549B	IV	R	R	R	R		S			7, 17, 25	30T	31	3.3
424552	IV	S	R	R						17, 25		7	5.5
424554	IV	S	R	S						17		25	6.3
424555A	IV	R	R	S						7, 17		25	4.0
424555B	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
424556	IV	S	S	S								25	6.2
424557	IV	R	S	S						7		25	6.0
424558A	IV	S	R	R						17, 25		7	4.8
424559	IV	R	R	R	R	R	R	S		7, 17, 25	31, 30T, 30	NT	—
424561	IV	R	R	S						7, 17		25	8.0
424566	IV	S	S	R						25		17	3.3
424567	IV	R	R	S						7, 17		25	5.2

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae.*

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
424568	III	S	R	S						17		25	3.3
424569A	III	S	R	R						17, 25		7	3.0
424569B	IV	R	R	R	S		S			7, 17, 25		31	3.3
424570	III	S	S	R						25		17	4.5
424571	IV	S	S	S								25	6.3
424572	IV	S	S	S								25	3.5
424573	IV	S	S	S								25	5.3
424574	IV	S	S	S								25	4.5
424575	IV	R	R	S						7, 17		25	6.2
424579	IV	S	S	R						25		17	4.0
424580	IV	S	S	R						25		17	4.2
424581	IV	S	S	S								25	4.3
424582	IV	R	S	S						7		25	3.5
424583	IV	R	S	S						7		25	3.7
424584	IV	S	S	S								25	4.0
424587	IV	S	S	R						25		17	6.0
424588	IV	S	S	S								25	6.8
424590A	IV	S	S	S								25	4.3
424590B	IV	S	S	S								25	5.7
424592	IV	R	S	S						7		17	3.2
424596	IV	S	S	R						25		NT	—
424597	IV	R	S	S						7		25	4.6
424599	IV	S	S	S								25	4.0
424600	IV	S	R	R						17, 25		7	6.0
424604	IV	S	S	R	S					25		30T	3.5
424605A	IV	S	S	R						25		17	4.8
424607	IV	R	S	R						7, 25		17	3.0
424608A	IV	S	S	R	S					25		30T	3.7
424608B	IV	S	S	S								25	3.5
424609	IV	S	S	S								25	6.3
424610	IV	R	S	S						7		25	5.5
424611A	IV	S	S	S								25	5.0
424611B	IV	S	S	S								25	5.8
424612	IV	S	S	R	S					25		30T	3.7
424613	IV	S	S	S								25	4.3
424614	IV	R	R	S						7, 17		25	7.3
424615	IV	R	R	R	R	R	R	S	S	7, 17, 25	31, 30T, 30	NT	—
424617	IV	S	S	R						25		7	7.5
427088A	I	S	S	S								25	6.2
427088B	I	R	S	S						7		25	7.3
427088C	II	S	S	S								25	6.7
427088D	II	S	R	S						17		25	5.3
427088E	II	R	R	S						7, 17		25	4.7
427088F	II	R	S	R						7, 25		17	5.2
427088G	II	R	R	S						7, 17		25	5.3
427088H	II	R	R	S						7, 17		25	4.3
427088I	II	R	R	S						7, 17		25	4.5
427088J	IV	S	S	S								25	4.5

Table 3 (continued). Reactions of Soybean Plant Introductions to *Phytophthora sojae*.

PI	MG	*P. sojae* races								R	R	Layer/S	PR
		7	17	25	30T	30	31	33	38	7,17,25	31, 30T, 30, 33, 38	Psrace	Score
427099	I	S	R	S						17		25	7.0
427105A	II	S	R	S						17		25	5.2
427105B	II	R	S	S						7		25	3.0
427106	II	S	S	R						25		17	3.3
427107A	II	R	S	S						7		25	4.2
427107B	II	R	S	R						7, 25		25	6.2
427107C	II	S	S	S								25	4.3

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